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of

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and

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for

ELECTRONIC PAYMENT SYSTEM EMPLOYING SELECTIVELY ACTIVATABLE LIMITED-USE ACCOUNT NUMBER

BACKGROUND OF THE INVENTION

1. Related Application

This application is a continuation-in-part of U.S. Patent Application Serial No. 09/205,416, filed December 2, 2001, entitled, "Electronic Payment System Employing Limited-Use Account Number," which is incorporated herein by reference.

2. The Field of the Invention

The present invention relates to systems for electronically transferring funds. In particular, the present invention relates to electronic payment systems in which an account number is activated for a limited period of time or for a limited number of transactions, such that unauthorized persons are prevented from gaining access to the account.

3. Background and Related Art

During recent years, the use of cash in financial transactions has been increasingly replaced with various forms of electronic payment. For example, credit cards and debit cards are now commonly used by consumers to make purchases or to otherwise authorize the transfer of funds to merchants. In situations where a card cannot be used, such as when a transaction takes place over the telephone or internet, customers often disclose an account number associated with the debit or credit card. Such electronic forms of payment have become widely used for many reasons, including convenience and the ability to maintain an electronic record of transactions.

Figure 1 represents a typical transaction using a form of electronic payment. Initially, the account issuer 110, such as a bank, issues the account holder 112 an account number 119 associated with a credit card account. In order to make a purchase, account

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holder 112 presents a merchant 126 with the account number 119. This request is then sent to the account issuer 110.

Figure 1 represents a prior art system by which an account holder authorizes a transaction to be executed using an account, such as a credit card account. In order to enable electronic payment, an account issuer 110, which may be a bank or other financial institution, typically establishes an account for the account holder 112 and issues a card that enables a consumer to conveniently authorize funds to be drawn from the account. The account is generally associated with a multi-digit account number 119 that uniquely identifies the account.

In order to execute a transaction using the account, the account holder 112 can present the card to a merchant 126, who makes a copy of the account number 119 written, stored, or encoded on the card. The merchant 126 verifies that there are available funds 130 associated with the account number 119 and exchanges goods or services 128 for an authorization or request to transfer those funds 130 to the merchant's financial institution 125. In response to the authorization or request to execute the transaction, account issuer 110 sends the requested funds 130 to a processor 131, which is an entity that facilitates the transfer of the funds to the merchant's financial institution 125. The merchant's financial institution receives the funds 130 and adjusts merchant's account information 127 accordingly.

Often, account number 119 is printed on the face of the card issued to the account holder 112 and may also be encoded in a magnetic strip on the card or stored in a microchip embedded in the card. Prior to completing the sale of goods or services 128, the merchant 126 ordinarily verifies that the account holder 112 is authorized to make a purchase using the card by requiring the account holder's signature or receiving a personal

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identification number (PIN). The signature can be recognized as belonging to the account holder 112 by comparing the signature against an authorized signature written on the card. The PIN is a multi-digit number that is not encoded or written on the card but is instead memorized by the account holder 112.

Signatures and PINs represent a first line of defense to prevent the unauthorized use of credit and debit cards by persons other than the rightful account holder. The account holder's signature can be seen as evidence of the identity of the person using the card. Likewise, since the PIN is supposedly known only by the account holder, its use by a person using the card generally verifies that the person is an authorized account holder. In many situations, however, persons who fraudulently use credit or debit cards are able to circumvent these security measures. For instance, signatures can frequently be forged by unauthorized persons. Moreover, merchants sometimes do not carefully verify that the signature presented by a person using a card matches the authorized signature. There are also many commercial environments in which signatures cannot be obtained, such as automated teller machines, telephone commerce, self-serve gasoline pumps, and Internet and other on-line transactions. In these situations, merchants might require the user of the card to present a PIN. However, if an unauthorized person obtains the PIN in addition to the card number, there may be no way to detect fraudulent use until after the fact.

Advances in the technology of the actual cards may provide additional security. For example, a "smart card" is a card that physically resembles a traditional credit or debit card, but is embedded with a microprocessor and a data storage device or structure. The ability of these cards to store data and run various applications may provide a consumer with additional security against the unauthorized use of the card. The card holder may, for example, be able to lock and unlock applications on the card. Access to data stored on the

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card may be denied unless the proper password is provided. However, even this advanced "smart card" technology can provide no protection if the account number associated with the card is intercepted after being properly disclosed by the account holder to a merchant.

The difficulty of preventing the unauthorized use of credit cards, debit cards, or account numbers has made many consumers hesitant to use such forms of payment, particularly over the telephone, the Internet or via other communication networks. Many people have experienced the inconvenience of unauthorized use of their credit cards, debit cards, or account numbers. Financial institutions have also spent much time and effort in developing new systems of preventing such unauthorized use.

It has been widely observed that consumers are hesitant to transmit their account numbers over open networks such as the Internet and the telephone systems. Many people fear that their account numbers will be intercepted, while others are reluctant to divulge their account numbers and PINs to persons who are essentially strangers. Encryption technology has been used to reduce the likelihood that credit and debit card numbers can be intercepted from the Internet during transmission. However, many experts in Internet security recognize that encryption technology can be seen as a moving target, in that security techniques that would recently have been deemed foolproof are now subject to being breached.

In view of the foregoing, what is needed is a system for executing electronic transactions that introduces a level of security that has not been possible by the mere use of signatures, PINs, encryption technology, and "smart card" technology. It would be an advancement in the art to provide an electronic transaction system that permits consumers to use credit and debit accounts over the telephone or the Internet without the fear of the unauthorized use of their account numbers. It would be a further advancement in the art if

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such systems could be practiced in the basic architecture of conventional communications networks with little additional cost to consumers, merchants, or financial institutions.

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SUMMARY OF THE INVENTION

The present invention relates to electronic transaction systems in which an account number is activated for a limited period of time or for a limited number of transactions. According to the invention, a financial institution establishes an account for an account holder. The account issuer creates a limited-use account number is associated with the account and is activated only upon an explicit request by the account holder. The account holder is then issued a transaction card (a "smart card" or a conventional magnetic strip card) which may be used to explicitly request activation of the limited-use account number.

In situations where the account holder wants to employ the security measures provided by the invention, the account holder initiates a communication with the account issuer using the transaction card and requests that the limited-use number be temporarily activated. The account holder can make this request using a card reader connected to a line of communication in his or her home or by using a terminal, such as an ATM, set up by the account issuer that is capable of reading the card and communicating with the account issuer. The limited-use account number remains activated until limited conditions are satisfied. For example, the limited conditions may specify that the limited-use number is to be deactivated when a certain number of transactions have been executed or when a certain period of time has expired.

Once the limited-use account number has been activated, the account holder can initiate transactions in a conventional manner. If for example, a limited-use account number is activated for a certain period of time, the account issuer deactivates the account number upon the expiration of the certain period of time. In the meantime, the account holder can use limited-use account number to initiate any desired number of transactions. If the limited-use number is instead activated for a certain number of transactions, the

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account issuer uses the limited-use account number until the specified number of transactions have been executed. In either case, once the limited-use account number is deactivated, it cannot be used to authorize transactions until it is again activated.

The limited conditions under which the limited-use account number is activated gives account holders the assurance that their account number cannot be misused by an unauthorized person while it is inactive. In a specific example, an account holder can use the transaction card to request that the limited-use account number be activated for a single transaction. The account holder can then transmit the limited-use account number over the Internet or over the telephone to execute a single transaction. After the transaction is completed, any person that may have intercepted the account number will be prevented from completing any transactions using the account number while it is inactive.

In another implementation of the invention, an intermediary institution issues a limited-use account number and links it with a regular account number issued to the account holder from a third-party financial institution. The regular account number may be associated with, for example, a credit card account issued by the third-party financial institution. The account holder can communicate with the intermediary institution to selectively activate the limited-use account number under limited conditions. The limited-use account number issued by the intermediary institution is used to authorize a transaction with a merchant. In response, the intermediary institution then authorizes funds to be transferred from the third-party financial institution using the regular account number. In this manner, the intermediary institution acts as a gatekeeper and controls transaction activity of the regular account number, in effect converting the regular account number into a limited-use account number.

Additional features and advantages of the invention will be set forth in the

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description which follows, and in part will be obvious from the description, or may be learned by the practice of the invention. The features and advantages of the invention may be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. These and other features of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

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BRIEF DESCRIPTION OF THE DRAWINGS

In order that the manner in which the above-recited and other advantages and features of the invention are obtained, a more particular description of the invention briefly described above will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. Understanding that these drawings depict only typical embodiments of the invention and are not therefore to be considered limiting of its scope, the invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

Figure 1 is a schematic diagram illustrating a conventional credit card transaction.

Figure 2 is a schematic diagram illustrating an account issuer that issues a regular account number and a limited-use account number to an account holder.

Figure 3a is a schematic diagram depicting a transaction authorized using the limited-use account number.

Figure 3b is a schematic diagram illustrating a transaction authorized using a transaction card to request activation of the limited-use account number.

Figure 4 is a schematic diagram illustrating a transaction authorized using the regular account number.

Figure 5 illustrates a data structure that resides in a computer-readable medium and represents the account information for executing transactions according to the invention.

Figure 6 is a flow chart depicting a method according to the invention for using the limited-use account number to execute financial transactions.

Figure 7 is a schematic diagram illustrating a transaction executed using a limited-use account number linked, by an intermediary institution, to a regular account number.

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DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to electronic transaction systems in which an account number is activated for a limited period of time or for a limited number of transactions. According to the invention, a financial institution, or account issuer, establishes an account for an account holder. The financial institution issues a limited-use account number that is associated with the account and activated only upon an explicit request by the account holder. The account holder makes the request using a transaction card, (a "smart card" or conventional magnetic strip card).

In order to use the limited-use account number, the account holder uses the transaction card to transmit a request to the account issuer or the account issuer's computer system for activation of the limited-use number. Upon activation thereof, the account holder may execute one or more transactions using the limited-use number. The limited-use number is deactivated when a specified number of transactions have been executed, when a specified period of time has expired. Alternatively, the limited-use account number, upon activation, can be used only for a single transaction for an amount of money equal to a specified amount or falling within a specified range. The deactivation of the limited-use account number permits the account holder to divulge the account number with a significantly reduced apprehension that an unauthorized person will be able to gain access to funds in the account.

The present invention extends to computer-readable media having computer-executable instructions or data structures stored thereon. Examples of computer-readable media include RAM, ROM, EEPROM, CD-ROM or other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other medium capable of storing instructions or data structures and capable of being accessed by a general purpose or

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special purpose computer. Computer-readable media also encompasses combinations of the foregoing structures. Computer-executable instructions comprise, for example, instructions and data that cause a general purpose computer, special purpose computer, or special purpose processing device to execute a certain function or group of functions. The computer-executable instructions and associated data structures represent an example of program code means for executing the steps of the invention disclosed herein.

The invention further extends to computer systems for executing transactions using the limited-use account numbers disclosed herein. Those skilled in the art will understand that the invention may be practiced in computing environments with many types of computer system configurations, including personal computers, multi-processor systems, network PCs, minicomputers, mainframe computers, and the like.

1. Transaction Card for Managing Limited-Use Account Number

Figure 2 illustrates one example of the establishment of an account that is associated with a limited-use account number of the invention. Account issuer 10 establishes an account for account holder 12 by compiling account information 14. Account information 14 may be stored on a computer-readable medium associated with a computer system of the account issuer 10. The account represented by account information 14 may be a line of credit established for account holder 12, a deposit account such as a checking, savings, money market, or other investment account. Indeed, the account represented by account information 14 may be any account from which funds may be drawn on behalf of account holder 12.

In one embodiment of the invention, a limited-use account number 16 is created and associated with the account. As used herein, the term "account number" extends to a

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number or other identifying information that can be used to identify a particular account such that a transaction can be executed on the account. Limited-use account number 16 remains inactive until account holder 12 requests activation thereof. The issuer or related entity, issues a transaction card 21 to the account holder 12. The transaction card 21 may be used to activate the limited-use account number 16.

In one embodiment, the transaction card is a smart card equipped with additional security measures. For example, the smart card may remain in an inactive state until it is activated by a finger print match, voice print match, or PIN match. These security measures are internal to the smart card and protect against unauthorized use of the card itself. The smart card's security measures combined with the security measures taken by the account issuer 10 and other related entities ensure that the account holder 12 may only activate the limited-use account number and authorize a transfer of funds. While such additional security measures can provide a heightened degree of security, the invention can be practiced using other transaction cards that communicate as disclosed herein with the account issuer.

In one embodiment of the invention, a regular account number 18 is also created and associated with the account. Regular account number 18 is to be activated and made available to account holder 12 to execute transactions for an indefinite or relatively long period of time. For example, regular account number 18 may be set to expire several months or years after issuance thereof, similar to the manner in which conventional credit and debits cards are made to expire after several months or years. While regular account number 18 provides a degree of flexibility and convenience to account holder 12 to execute transactions at will, as will be further described herein, the invention may be practiced by issuing only limited-use account number 16.

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In one implementation of the invention, account issuer 10 or related entity issues a transaction card 21, which may be similar to a conventional credit or debit card, to account holder 12. In addition to having functions similar to those of a conventional credit or debit card, the transaction card 21 contains encoded or stored data that allows account holder 12 to activate the limited-use account number 16 by using the transaction card in a card reader. The card reader can be associated with a personal computer if, for example, the limited-use account number is to be used to execute a transaction on the Internet. Alternatively, the card reader can be associated with an automated teller machine, can be located at the point of purchase where the account holder initiates a transaction with a merchant, or can be a dedicated limited-use account activation terminal located at a convenient site where it can be used by account holder 12.

In embodiments where a regular account number 18 is used, the card can have the regular account number encoded thereon. "Encoding" a number on the card, as used herein, includes writing, forming, printing, encoding in a computer-readable medium, or otherwise physically representing the number on the card 21. The limited-use account number 16 can be communicated to account holder 12 by letter or by another means in order to avoid printing the limited-use account number 16 on the card 21. Alternatively, limited-use account number 16 can be printed on a card separate from the card that includes the regular account number 18. According to yet another alternative, limited-use account number 16 and a regular account number 18 can be printed on a single card. However, as will be discussed in greater detail below, the latter alternative may be less desirable in many circumstances because it is often be preferable not to disclose both account numbers to a single merchant.

Figure 3A illustrates a transaction executed using the limited-use account number

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of the invention. Figure 3B illustrates the same transaction when a transaction card 21 is used to request activation 22 of the limited-use account number 16. It is noted that the transactions of Figures 3A and 3B can be executed in connection with account holders that have both a limited-use account number and a regular account number or only a limited-use account number.

Referring to Figure 3B, account holder 12 establishes communication with account issuer 10 by using transaction card 21 in connection with a card reader, such as those that have been described above. In addition to establishing communication with the account issuer 10, the transaction card 21 can be used in this context to authenticate or verify that the person initiating the communication has physical possession of the transaction card as opposed to being an unauthorized party who has intercepted the account number. Once communication has been established between account holder 12 and account issuer 10, the account holder makes a request 22 for activation of limited-use account number 16. In one embodiment, request 22 includes a private identifier in addition to limited-use account number 16 to verify the identity of the person making the request 22. For example, the private identifier can include a PIN, a password, the account holder's birthday, or virtually any other piece of information that tends to verify that the account holder 12 is the person who has made request 22.

Request 22 can optionally specify the limited conditions under which the limited-use account number 16 is to be activated. For example, account holder 12 can be permitted to select the period of time, the number of transactions, or a dollar amount for which limited-use account number 16 is to be activated.

It is noted that a limited-use condition defined as a dollar amount differs from a conventional credit limit imposed by an account issuer in that the dollar amount is selected

by the account holder 12 for a specific transaction or series of transactions and is typically less than the credit limit otherwise associated with the account. For example, if the account holder 12 were to prepare to execute an Internet transaction having a dollar amount of $55.00, the limited-use condition selected by the account holder 12 could be a dollar amount of $55.00 or some other amount greater than $55.00 and less than the credit limit imposed by account issuer 10 on the account. In this example, selecting a dollar amount of $55.00 would prevent any party from using the activated limited-use account number to execute any transaction greater than $55.00, regardless of any greater credit limit imposed on the account by account issuer 10.

Alternatively, the limited conditions under which limited-use account number 16 is to be activated can be standard so as not to require any selection by account holder 12. Upon activation of limited-use account number 16, account issuer 10 transmits a verification 24 that the account number has been activated. Alternatively, the invention can be practiced without the verification, in which case the account holder 12 would simply proceed under the assumption that limited-use account number 16 has been activated.

With limited-use account number 16 having been activated, account holder 12 communicates with merchant 26 to authorize the transaction. Account holder 12 can divulge limited-use account number 16 to merchant 26 in a conventional manner. For example, if the transaction is to be performed on a credit account, account holder 12 transmits limited-use account number 16 to merchant 26 as if it were a typical credit card number. In the example of Figures 3A and 3B, account holder 12 authorizes the transaction in return for goods or services 28 provided by merchant 26.

In order to receive payment based on limited-use account number 16, merchant 26

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transmits a limited-use account number to account issuer 10 or to a third party according to any desired technique including those well-known in the art. In response to the communication of the limited-use account number 16, account issuer 10 initiates the transfer of funds 30 in the authorized amount to compensate merchant 26. Depending on the nature of the account, funds 30 can be drawn from a positive balance maintained in a deposit account, from a credit account to increase the amount owed on credit by the account holder, or according to any other financial arrangement.

Assuming that limited-use account number 16 has been activated for only a single transaction, the limited-use account number 16 is deactivated after the account number has been communicated from the merchant 26 to account issuer 10 in order to either execute or authorize the transaction. Thus, any subsequent attempt to use limited-use account number 16 to draw funds from the account will be unsuccessful until such time that account holder 12 again requests activation of the limited-use account number. If limited-use account number 16 has been activated for multiple transactions, it remains activated until account issuer 10 has executed the specified number of transactions. Likewise, account issuer 10 deactivates limited-use account number 16 after a specified period of time has elapsed where activation is requested for a limited period of time.

It is noted that the period of time for activation of limited-use account number 16 can be of any desired duration. In practice, the period of time will typically have a duration of minutes, hours, or days. Alternatively, the period of time can be on the order of weeks or longer, although a shorter duration is typically preferred as extended activation periods reduce the amount of protection provided by the invention. The factors involved in setting the period of time of activation of the limited-use account number can include making the period long enough to permit the account holder to execute the transaction

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without being unduly rushed, while making the period short enough to thwart the unauthorized use by others. In contrast, as discussed above, the regular account number can be activated indefinitely of for a relatively longer period of time (i.e., months or years) so as to permit the account holder to execute an essentially unlimited number of transactions at his or her convenience.

Figure 4 illustrates the parties depicted in Figure 3A engaging in a transaction using regular account number 18. As noted above, regular account number 18, in embodiments of the invention where it exists, can be activated for an indefinite period of time or number of transactions. If the account associated with account holder 12 is a credit account, the account holder can use regular account number 18 in the same manner as a conventional credit card number. The creation of regular account number 18 in addition to limited-use account number 16 provides account holder 12 the convenience of repeatedly accessing the account without having to establish communication with account issuer or to request activation of the account number. As shown in Figure 3, account holder 12 divulges regular account number 18 to merchant 26, who then transmits the regular account number to account issuer 10. In response, account issuer 10 authorizes the transfer of funds 20 to merchant 26.

In view of the transactions depicted in Figures 3A, 3B and 4, it can be understood that account holders may find it desirable to use limited-use account number 16 in situations where the security of the transactions could otherwise be in doubt. For example, account holders 12 can advantageously use limited-use account number 16 over open networks such as the Internet or the public telephone system. Even if an unauthorized person were to intercept the limited-use account number 18, it is unlikely that this account number could be used in an unauthorized way, since the number remains in a deactivated

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state until account holder 12 specifically requests activation thereof. It can also be seen that in many situations, it may be undesirable to divulge both account numbers 16 and 18 to a merchant 26 at the same time. If an account holder 12 were to divulge regular account number 18 when using limited-use account number 16, an unauthorized person may be able to obtain the regular account number 18 and circumvent the security features associated with the invention. For this reason, limited-use account number 16 and regular account number 18 are not written on a single card in a preferred embodiment of the invention.

Figure 5 illustrates an example of a data structure established in a computer system of an account issuer for tracking the status and activity of an account according to the invention. Account information data structure 32 includes data fields representing account holder information 34, such as the name, billing information, and identifying information associated with the account holder. Data structure 32 also includes regular account number 18 (in those embodiments in which it is used), limited-use account number 16, the activation status 36 of the limited-use account number, and the limited-use conditions 38 for which limited-use account number can be activated. Activation status 36 includes, for example, a computer-readable code that indicates whether limited-use account number 16 is currently activated. Data structure 32 can also include a data field representing available funds 40 that can be transferred from the account.

Data structure 32 can reside at a computer-readable medium associated with computer system 42. Alternatively, the various data fields of data structure 32 may be located at different computer-readable mediums associated with computer system 42. Upon learning of the disclosure made herein, those skilled in the art will understand how to implement data structure 32 for storing and maintaining the information associated with

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the accounts of the inventions.

Figure 6 is a flow chart illustrating an embodiment of the methods of the invention for executing transactions using the limited-use account number. In step 44, the account issuer issues the limited-use account number and the optional regular account number as discussed herein in reference to Figure 2. In step 44, the account issuer or another entity issues a transaction card also as discussed in reference to Figure 2. In step 46, the regular account number is activated. This may be accomplished when the account is established for the account holder or when the account holder verifies that the regular account number has been successfully mailed or otherwise transmitted. Of course, in embodiments in which no regular account number exists, step 46 is skipped.

At a time selected by the account holder, the account issuer receives a request from the account holder using the transaction card to activate the limited-use account number as shown in step 48. In response to the request, the account issuer activates the limited-use account number in step 50. According to decision block 52, if the account holder subsequently authorizes funds to be transferred from the account, as shown in Figure 2, the method advances to step 54, in which funds are transferred from the account to the merchant.

The method then proceeds to decision block 56 in which it is determined whether the limited-use conditions have been satisfied. For example, the account issuer can determine whether a specified period of time has expired since the limited-use account number was activated, whether a specified number of transactions have been executed, or whether a transaction having a specified dollar amount has been executed. If the limited-use conditions are not yet satisfied, the method returns to step 52 to permit one or more transactions to be authorized. If the limited-use conditions have been satisfied, the method

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advances to step 58, in which the limited-use account number is deactivated. As illustrated by decision block 60, the method can repeatedly activate the limited-use account number as instructed by the account holder, execute transactions with the limited-use number, and deactivate the limited-use number.

2. Intermediary Institution for Managing Limited-Use Account

The foregoing embodiments of the invention illustrated in Figures 2-6 have been described generally in the context of an account issuer issuing a limited-use number to an account holder for use with an account maintained by the account issuer. In another embodiment of the invention depicted in Figure 7, an intermediary institution issues limited-use account numbers that are linked to conventional credit or debit accounts issued and maintained by third-party account issuers. The intermediary institution there by effectively transforms the third-party account into a limited-use account having the features and uses described above in reference to Figures 2-6. One benefit of the system of Figure 7 is that the intermediary institution can effectively provide limited-use accounts with or without the cooperation or knowledge of the actual account issuer.

Figure 7 illustrates a transaction made using a limited-use number 16 issued by an intermediary institution 13 and linked or otherwise associated with an existing account number 19 issued from another financial institution, the account issuer 10. Initially, the account issuer 10 issues a regular account number 19 to the account holder 12. For example, account issuer 10 establishes a credit or debit account for account holder 12 and issues a conventional credit or debit card having encoded thereon a regular account number.

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In order to effectively convert the account issued by account issuer 10 into an account having a limited-use account number, the intermediate institution 13 issues a limited-use number 16 to the account holder 12. Intermediate institution can do so, for example, by issuing a transaction card associated with the limited-use number 16 to account holder 12 and associating limited-use number 16 with regular account number 19 in a database or another data structure. The limited-use account number 16 can be printed on the transaction card, stored on a data storage device of the transaction card, or both. The transaction card becomes a virtual credit or debit card and the intermediary institution 13 can be described as having issued a virtual credit or debit account to account holder 12.

Using the transaction card, the account holder 12 makes a request 23 that the limited-use number 16 be activated under limited conditions. The intermediary institution 13 receives this request 23 and activates the limited-use number 16 according to specified limited conditions. The intermediate institution 13 then sends a verification 24 to the account holder 12 noting that the limited-use number 16 has been activated under limited conditions. Alternatively, the intermediary institution 13 may not send a verification 24 to the account holder 12 in which case the account holder 12 would proceed under the assumption that the limited-use account number 16 has been activated.

In order to make a purchase, the account holder 12 presents merchant 26 with the limited-use number 16. The merchant 26 verifies that there are available funds 30 associated with the limited-use account number 16. The verification of available funds is conducted by intermediary institution converting limited-use account number 16 to regular account number 19 and issuing a conventional request to account issuer 10 for verification of funds 30 using regular account number 19. Intermediary institution 13 then transmits the verification to merchant 26.

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Upon receiving verification of availability of funds 30, merchant 26 exchanges goods or services 28 for an authorization or request that funds 30 be transferred to the merchant's financial institution 25, which results in adjustment of merchant's account information 27 to reflect the transfer of funds. The request is made by account holder 12 using limited-use account number 16, which is converted by intermediary institution 13 to the corresponding regular account number 19. The request for transaction is then forwarded by intermediary institution 13 to account issuer 10 using regular account number 19. The remaining portion of the transaction performed by account issuer 10, processor 31 and merchant's financial institution 25 is similar or identical to the corresponding portion of the transaction of Figure 1.

Thus, from the standpoint of merchant 26, the limited-use account number 16 presented by account holder 12 operates as a regular account number in the sense that it can be used to initiate a transaction. Moreover, from the standpoint of account issuer 10, the request that it receives to verify availability of funds and to initiate a transaction is indistinguishable from one using a regular account number 19. Thus, the intermediary institution needs little or no cooperation, or even knowledge, on part of the merchant 26 or the third-party account issuer 10 to convert a conventional account issued by the account issuer into one that has a limited-use account number.

As noted above, intermediary institution activates and deactivates limited-use account number 16 according to limited-use conditions. If an unauthorized party were to intercept the limited-use account number 16, the number cannot be used after the limited number of transactions, the limited time, or other limited conditions have been met. In these aspects, the limited-use account number 16 of Figure 7 is similar in operation to the limited-use account numbers of Figures 2-6.

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Using the intermediary institution, an account holder may benefit from the invention even if his or her account issuer does not offer the services. The intermediary institution acts as a gatekeeper, allowing only those transactions authorized in advance to be received by the account issuer. The account issuer need not change any aspect of its operating procedure. Using an intermediary institution, the invention operates within the existing infrastructure. While it may be desirable to have the account issuer cooperate with the invention, it is not necessary for the invention to function properly.

The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

What is claimed and desired to be secured by United States Letters Patent is:

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